

7
Figs 31-36 graphically illustrate various matrix switch programming grid states at select points in generating and configuring the matrix switch to implement the media processing of Fig. 29.

Fig. 38 illustrates an example matrix switch suitable for use in the media processing project of Fig. 29, according to one described embodiment.

Fig. 38a graphically illustrates an example data structure in the form of a hierarchical tree structure that represents a project that is useful in understanding composites in accordance with the described embodiments.

Fig. 39 is a flow diagram that describes steps in a method in accordance with one described embodiment.

Fig. 40 illustrates an example method of generating a filter graph, in accordance with one aspect of the present invention.

Fig. 41 graphically illustrates an example reuse list, according to one aspect of the present invention.

Fig. 42 illustrates an example method for source combining in support of the method introduced in Fig. 40, according to one embodiment of the present invention.

Fig. 43 graphically illustrates a timeline representation of source combining introduced in Fig. 42.

Fig. 44 illustrates a block diagram of an example render engine utilizing a segment filter in a filter graph, in accordance with one aspect of the present invention.

Fig. 45 illustrates a flow chart of an example method of generating a filter graph to reuse source filters, in accordance with one aspect of the present invention.

In the Specification

Please replace the subject matter starting on page 8, line 6 through page 9, line 17 with the following:

--Related Applications

This application is related to the following commonly-filed U.S. Patent Applications, all of which are commonly assigned to Microsoft Corp., the disclosures of which are incorporated by reference herein:

- Application Serial No. 09/731,560, ^{now U.S. Patent 6774919} entitled "An Interface and Related Methods for Reducing Source Accesses in a Development System", naming Daniel J. Miller and Eric H. Rudolph as inventors;
- Application Serial No. 09/732,084, ^{now U.S. Patent 6843390} entitled "A System and Related Interfaces Supporting the Processing of Media Content", naming Daniel J. Miller and Eric H. Rudolph as inventors;
- Application Serial No. 09/732,452, ^{filed 12/6/2000} entitled "A System and Related Methods for Reducing Memory Requirements of a Media Processing System", naming Daniel J. Miller and Eric H. Rudolph as inventors;
- Application Serial No. 09/731,529, ^{filed 12/6/2000} entitled "A System and Related Methods for Reducing the Instances of Source Files in a Filter Graph", naming Daniel J. Miller and Eric H. Rudolph as inventors;
- Application Serial No. 09/732,087, ^{filed 12/6/2000} entitled "An Interface and Related Methods for Dynamically Generating a Filter Graph in a Development System", naming Daniel J. Miller and Eric H. Rudolph as inventors;
- Application Serial No. 09/732,090, ^{now U.S. Patent 6611215} entitled "A System and Related Methods for Processing Audio Content in a Filter Graph", naming Daniel J. Miller and Eric H. Rudolph as inventors, and now U.S. Patent No. 6,611,215;
- Application Serial No. 09/732,085, ^{filed 12/6/2000} entitled "A System and Methods for Generating an Managing Filter Strings in a Filter Graph", naming Daniel J. Miller and Eric H. Rudolph as inventors;
- Application Serial No. 09/731,491, ^{now U.S. Patent 6768499} entitled "Methods and Systems for Processing Media Content", naming Daniel J. Miller and Eric H. Rudolph as inventors;

H.P.
5/22/05

- 1 • Application Serial No. 09/731,563, ^{filed 12/6/00} entitled "Systems for Managing
2 Multiple Inputs and Methods and Systems for Processing Media
3 Content ", naming Daniel J. Miller and Eric H. Rudolph as
4 inventors;
- 5 • Application Serial No. 09/731,892, ^{filed 12/6/00} entitled "Methods and Systems
6 for Implementing Dynamic Properties on Objects that Support Only
7 Static Properties", naming Daniel J. Miller and David Maymudes as
8 inventors;
- 9 • Application Serial No. 09/732,089, ^{filed 12/6/00} entitled "Methods and Systems
10 for Efficiently Processing Compressed and Uncompressed Media
11 Content", naming Daniel J. Miller and Eric H. Rudolph as inventors;
- 12 • Application Serial No. 09/731,581, ^{filed 12/6/00} entitled "Methods and Systems
13 for Effecting Video Transitions Represented By Bitmaps", naming
14 Daniel J. Miller and David Maymudes as inventors;
- 15 • Application Serial No. 09/732,372, ^{now Patent 6,882,891} entitled "Methods and Systems
16 for Mixing Digital Audio Signals", naming Eric H. Rudolph as
17 inventor; and
- 18 • Application Serial No. 09/732,086, ^{filed 12/6/00} entitled "Methods and Systems
19 for Processing Multi-media Editing Projects", naming Eric H.
20 Rudolph as inventor.—
21
22
23
24
25

1 **TECHNICAL FIELD**

2
3 This invention generally relates to processing media content and, more
4 particularly, to an interface and related methods for reducing source filter
5 invocation during execution of a development project.
6

7 **BACKGROUND**

8 Recent advances in computing power and related technology have fostered
9 the development of a new generation of powerful software applications. Gaming
10 applications, communications applications, and multimedia applications have
11 particularly benefited from increased processing power and clocking speeds.
12 Indeed, once the province of dedicated, specialty workstations, many personal
13 computing systems now have the capacity to receive, process and render
14 multimedia objects (e.g., audio and video content). While the ability to display
15 (receive, process and render) multimedia content has been around for a while, the
16 ability for a standard computing system to support true multimedia editing
17 applications is relatively new.

18 In an effort to satisfy this need, Microsoft Corporation introduced an
19 innovative development system supporting advanced user-defined multimedia
20 editing functions. An example of this architecture is presented in US Patent No.
21 5,913, 038 issued to Griffiths and commonly owned by the assignee of the present
22 invention, the disclosure of which is expressly incorporated herein by reference.

23 In the '038 patent, Griffiths introduced the an application program interface
24 which, when exposed to higher-level development applications, enable a user to
25 graphically construct a multimedia processing project by piecing together a

Verified
H.P.
5/22/05

09734400 120600